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TITLE: Preparing enzymatic promoter of decomposition of organic waste that comprises alcohol, saccharide, organic acid, and amino acid, comprises adding saccharide solution and plant component to microbial suspension and proliferating

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PATENT-FAMILY:

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APPLICATION-DATE:

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ABSTRACTED-PUB-NO: JP2004141147A

BASIC-ABSTRACT:

NOVELTY - Preparing enzymatic agent (I) which promotes decomposition by fermentation, involves adding saccharide solution and plant component to microbial suspension, and proliferating the microbe at 25-42 deg. C, obtaining (I) which promotes decomposition of organic substance in organic waste material, where (I) contains alcohol, saccharide, organic acid-producing bacteria, organic acid, enzymes of fermenting microbes and amino acid.

DETAILED DESCRIPTION - Preparing enzymatic agent (I) which promotes decomposition by fermentation, comprises adding aqueous solution containing saccharide and plant component, to microbial suspension, and proliferating the microbe at 25-42 deg. C, and obtaining (I) which promotes decomposition of organic substance in organic waste material and common organic refuse, where (I) contains alcohol, saccharide, organic acid-producing bacteria, organic acid, enzymes of fermenting microbes and amino acid. Producing (I) involves mixing heat-processed plant component mixture with saccharogenic amylase, and obtaining saccharide. To the obtained mixture, yeast is mixed and allowed to proliferate, and (I) that promotes fermentation-type decomposition of organic substance in organic waste material and common organic refuse, is obtained, where (I) contains saccharide, organic acid-producing bacteria, enzyme, organic acid, yeast, amino acid and alcohol. Producing (I) for organic feed and fertilizer manufacture, involves heat-processing plant component at a temperature in which thermophilic bacteria survives. The temperature of the mixture is adjusted to 50-60 deg. C during which the saccharogenic amylase is added, and glucose, other saccharides and enzyme are obtained. The temperature is then lowered to 25-42 deg. C, after which yeast is mixed, and allowed to proliferate. Then acidic fermentation-type decomposition promoting enzymatic agent which promotes fermentation-type decomposition of organic substance in organic waste material and common organic refuse, is obtained, where the agent contains carbohydrate, organic acid-producing bacteria, organic acid, enzyme, yeast, amino acid and alcohol. Producing (I) for organic feed and fertilizer manufacture, involves mixing plant component such as outer layer, embryo, endosperm of grains or beans, one or two types of water, mineral water, mineral ion water, carbohydrate (0.5-20 wt.%) and starch; heat-processing the mixture at 70-85 deg. C; adjusting the temperature to 50-60 deg. C, after which

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saccharogenic amylase is added and saccharification is carried out for 1 hour or more, to obtain glucose, and other saccharides; lowering the temperature to 25-42 deg. C, mixing yeast and allowing it to proliferate; and obtaining (I) which contains organic acid-producing bacteria, organic acid, enzyme, yeast, yeast products, amino acid and alcohol, where pH of (I) is 3-4.5 plus or minus 1, alcohol concentration is 3-8%, and sugar content is 5-30%. Producing (I) involves heat-processing plant component at 70-85 deg. C, mixing aqueous solution containing carbohydrate, lowering temperature to 25-42 deg. C, mixing yeast and allowing it to proliferate to obtain alcohol, and thus (I) which promotes fermentation-type decomposition of organic substance in organic waste material and common organic refuse, is obtained, where (I) contains carbohydrate, organic acid-producing bacteria, organic acid, enzymes of fermenting microbes, yeast and alcohol. Producing (I) involves producing organic acid by fermenting organic substance containing acidic solution or carbohydrate, by mixing it with organic acid-producing bacteria, where aqueous solution containing carbohydrate and acidic solution containing saccharide is added to the organic substance, mixing yeast with organic acid at 25-42 deg. C, and allowing it to proliferate, to obtain alcohol, and thus (I) which promotes fermentation-type decomposition of organic substance in organic waste material and common organic refuse, is obtained, where (I) contains carbohydrate, organic acid-producing bacteria, organic acid, enzymes of fermenting microbes, yeast and alcohol. Producing (I) involves producing organic acid by fermenting organic substance containing acidic solution or carbohydrate, by mixing it with organic acid-producing bacteria, where aqueous solution containing carbohydrate and acidic solution containing saccharide is added to the organic substance, mixing carbohydrate with the heat-processed plant component such as outer layer, endosperm, embryo of grains or beans, at 70-85 deg. C, mixing yeast at 25-42 deg. C, after addition of carbohydrate, proliferating yeast and obtaining alcohol, and thus (I) which contains carbohydrate, organic acid-producing bacteria, organic acid, enzymes of fermenting microbes, yeast and alcohol, is obtained.

INDEPENDENT CLAIMS are included for the following:

- (1) a fermentation-type degradation promoting enzymatic agent, produced by above mentioned methods, which degrades organic substance of organic waste material;
- (2) fermentation-type degradation promoting agent for producing organic feed, fertilizer and soil conditioner, containing carbohydrate, organic acid, organic acid-producing bacteria, yeast, yeast products, where the pH of the agent is 3-4.5 plus or minus 1, the sugar content is 5-30%, and alcohol concentration is 3-8%;
- (3) organic fertilizer manufactured using (I); and
- (4) organic feed manufactured using (I).

ACTIVITY - Fertilizer.

MECHANISM OF ACTION - None given.

USE - For manufacturing fermentation type-decomposition promoting agent. The agent is useful for producing organic fertilizer which involves adding (I) at a concentration of 5-20 weight%, after adjusting the moisture content of the target organic substance to be degraded to 60-70%, stirring the mixture continuously or intermittently for 2-24 hours, at 20-50 deg. C, to carry out primary fermentation, carrying out secondary fermentation 10-20 days after primary fermentation, at 35-75 deg. C. (I) is also useful for producing organic feed which involves mixing (I) to the organic substance used as feed for animals, stirring the mixture continuously or intermittently for carrying out degradation at 20-60 deg. C and drying the mixture (claimed).

ADVANTAGE - The method enables improvement of soil fertility, and of agricultural processes. The methods also decrease the cost of processes which are carried out for preventing foul smelling of waste water, and installations

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for carrying out the processes. High quality organic fertilizers and feed can be manufactured using (I). (I) enables preparation of cheaper raw material for organic fertilizers, organic feed etc.

DESCRIPTION OF DRAWING(S) - The figure shows the process of producing organic fertilizers using enzymatic agent that promotes fermentation-type degradation of organic substance, organic vegetative substance and animal-derived organic substance. (Drawing includes non-English language text).

CHOSEN-DRAWING: Dwg.1/1

TITLE-TERMS: PREPARATION ENZYME PROMOTE DECOMPOSE ORGANIC WASTE COMPRISE
ALCOHOL SACCHARIDE ORGANIC ACID AMINO ACID COMPRISE ADD SACCHARIDE
SOLUTION PLANT COMPONENT MICROBE SUSPENSION PROLIFERATION

DERWENT-CLASS: C04 D13 D16 P43

CPI-CODES: C11-A; C11-B; C14-T01; C14-U01; D03-G01; D05-A02; D05-A04A;

CHEMICAL-CODES:

Chemical Indexing M1 *01*

Fragmentation Code

M417 M423 M431 M782 M905 N134 N136 N161 P002 P113

P126 P130 Q214 Q220

Specific Compounds

A00GTK A00GTM

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2004-144063

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